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Control no- 160200Z

TOT: 160300Z

CN: 16

BURNER
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FM 6595AEROSPACE TEST WG VAFB CALIF
TO 9SD LOSA VWZD
BT
/Q U C L A S S I F I E D/SUBJECT: PROGRAM 622A 5-HOUR LAUNCH FLASH REPORT
1. A PROGRAM 622A SATELLITE VEHICLE CONSISTING OF THOR BOOSTER NO. 334 AND AGENA B ORBITAL STAGE NO. 1126 WAS LAUNCHED ON THE FIRST ATTEMPT FROM VAFB COMPLEX 75-3 PAD 5 AT 1235:52.17 PDT ON 15 MAY 1962. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE AGENA SATELLITE WITH PAYLOAD IN A NEAR-POLAR ORBIT, WAS ACCOMPLISHED. READINGS FROM THE VTS RADAR PLOTTING BOARD GAVE AN INJECTION ALTITUDE OF 198 STATUTE MILES, AN INJECTION PAD REFERENCED VELOCITY OF APPROXIMATELY 25,468 FPS,

CLASSIFICATION CHANGED TO [redacted]

By Authority of HFR 205-2

By Lieut Col McCahan 7 APR 1966

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AN INJECTION FLIGHT PATH ANGLE OF ABOUT ZERO DEG, AND A DEPARTURE FLIGHT AZIMUTH OF APPROXIMATELY 172 DEG. TRACKING STATIONS AT KODIAK, ANNETTE AND HAWAII HAVE CONFIRMED ORBITAL STATUS THROUGH RECEPTION OF TELEMETRY AND RADAR BEACON SIGNALS ON THE FIRST ORBITAL PASS. THE ORBIT ATTAINED APPEARS TO BE VERY CLOSE TO NOMINAL.
A LIST OF SIGNIFICANT LAUNCH EVENTS FOLLOWS:

LIFTOFF (1235:52.17 PDT)	ZERO
STEERING INITIATED	9981 SEC
SECO (S1)	144.17 SEC
VECO	155.19 SEC
ENABLE D1 AND D2 (S2)	149.38 SEC
D1 ON	152.89 SEC
D 1 OFF	154.39 SEC
D2	NOT SENT
SEPARATION COMMAND (S3)	159.14 SEC
AGENA IGNITION (98 PER CENT PC)	212.27 SEC
AGENA BURNOUT (76 PER	

BOOSTER STEERING AND EVENT COMMANDS WERE GENERATED AND TRANSMITTED SATISFACTORILY BY THE GROUND GUIDANCE SYSTEM AND VEHICLE RESPONSE TO THE COMMANDS APPEARS TO HAVE BEEN PROPER. MECO OCCURRED AT 145.96 SEC AS A RESULT OF COMMAND FROM GROUND GUIDANCE SYSTEM, VERNIER ENGINE SOLO OPERATION LASTED 5.36 SEC WITH VECO OCCURRING AT 154.94 SEC. SEPARATION WAS INITIATED BY A GROUND GUIDANCE COMMAND AT 161.49 SEC. GROUND GUIDANCE SYSTEM DATA INDICATE THE BOOSTER COAST APOGEE ALTITUDE WAS 187.44 NM (NOMINAL: 187.49 NM) AND THE BOOSTER COAST APOGEE VELOCITY WAS 9973 FPS (NOMINAL: 9974 FPS).

B. AGENA SATELLITE VEHICLE - OBJECTIVES ACHIEVED

1. AGENA AIRFRAME AND ADAPTER

STRUCTURAL INTEGRITY WAS MAINTAINED AND NO EXCESS LOADS WERE APPLIED. THE USUAL 18-20 CPS VEHICLE LONGITUDINAL OSCILLATIONS WERE PRESENT DURING THE THOR BOOST PERIOD. ALL PYROTECHNIC FUNCTIONS OCCURRED AT APPROXIMATELY NOMINAL TIMES. THE RETRO-ROCKETS SATISFACTORILY PROVIDED THE THRUST

NECESSARY FOR COMPLETE SEPARATION BY 163.43 SEC.

2. AGENA PROPULSION SYSTEM

SILARC ROCKET IGNITION WAS SATISFACTORY. AGENA ENGINE IGNITION OCCURRED IN A NORMAL MANNER AT 192.76 SEC AND 90 PERCENT CHAMBER PRESSURE WAS ACHIEVED WITHIN 1.2 SEC. THE ENGINE OPERATED SATISFACTORILY FOR 237.7 SEC AND SHUTDOWN WAS SIGNALED AT 431.5 SEC BY THE INTEGRATOR. THE SHUTDOWN BEHAVIOR WAS ABNORMAL IN THAT THRUST DECAYED SLOWLY AFTER THE CLOSURE OF THE SHUTDOWN RELAY, REDUCING TO 98 PER CENT IN APPROXIMATELY 8.35 SEC, THEN DROPPING SHARPLY TO NEAR ZERO. THE SLOW SHUTDOWN RESULTED IN AN EXCESS INJECTION VELOCITY.

3. AGENA ELECTRICAL POWER SYSTEM

NO EVIDENCE OF AGENA ELECTRICAL POWER SYSTEM PROBLEMS HAS BEEN NOTED.

4. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM

THE AGENA GUIDANCE SYSTEM RESPONDED PROPERLY TO A 6.92 SEC TIME-TO-FIRE CORRECTION AND A 3.88 SEC VELOCITY-TO-BE-GAINED CORRECTION COMMANDED BY THE ST

DOWN-RADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIRECTIVE 5200.10

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CENT PCJ 456.56 SEC
VTS VERLORT RADAR FADE 519 SEC
VTS ACQUISITION BEACON FADE 543 SEC
VTS TELEMETRY FADE (LINES
1 AND 2) 543 SEC
II. PRELIMINARY EVALUATION INDICATES THAT LAUNCH TEST OBJECTIVES WERE ACHIEVED AS FOLLOWS: (REF. DETAILED TEST OBJECTIVES, LMSC A48484, SECTION 2)
A. BOOSTER - OBJECTIVE ACHIEVED
BOOSTER IGNITION AND LIFTOFF WERE SATISFACTORY. THE THOR ROLL PROGRAM AND PITCH PROGRAM APPEAR TO HAVE BEEN PROPERLY EXECUTED. AT MAIN ENGINE CUTOFF, VEHICLE POSITION WAS WITHIN A SPHERE OF 3 NM RADIUS, FLIGHT PATH ANGLE WAS WITHIN PLUS OR MINUS 4 DEG, AND VELOCITY WAS WITHIN 340 FPS OF THE NOMINAL VALUE. BOOSTER STEERING AND EVENT COMMANDS WERE GENERATED AND TRANSMITTED SATISFACTORILY BY THE GROUND GUIDANCE SYSTEM AND VEHICLE RESPONSE TO THE COMMANDS APPEARS TO HAVE BEEN PROPER. MECO OCCURRED AT 144.17 SEC AS A RESULT OF COMMAND FROM GROUND GUI-

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DANCE SYSTEM. VERNIER ENGINE SOLO OPERATION LASTED 9.82 SEC WITH VECO OCCURING AT 153.19 SEC. SEPARATION WAS INITIATED BY A GROUND GUIDANCE COMMAND AT 159.14 SEC. GROUND GUIDANCE SYSTEM DATA INDICATE THE BOOSTER COAST APOGEE ALTITUDE WAS 154.6NM (NOMINAL 1156.6NM) AND THE BOOSTER COAST APOGEE VELOCITY WAS 8769 FPS (NOMINAL:8791 FPS.)
B. AGENA SATELLITE VEHICLE-OBJECTIVES ACHIEVED
1. AGENA AIRFRAME AND ADAPTER
STRUCTURAL INTEGRITY WAS MAINTAINED AND NO EXCESS LOADS WERE APPLIED. SEPARATION WAS INITIATED BY BTL DISCRETE AT 159.14 SEC. THE RETRO-ROCKETS SATISFACTORILY PROVIDED THE THRUST NECESSARY FOR COMPLETE SEPARATION BY 161.62 SEC.
2. AGENA PROPULSION SYSTEM
ULLAGE ROCKET IGNITION WAS SATISFACTORY. AGENA ENGINE IGNITION OCCURED IN A NORMAL MANNER AT T PLUS 211.45 SEC AND 90 PER CENT CHAMBER PRESSURE WAS ACHIEVED WITHIN 1.6 SEC. THE ENGINE OPERATED SATISFACTORILY FOR 244.3 SEC AND ENGINE SHUTDOWN OCCURED AT T PLUS 456.56 SEC ON INTEGRATOR COMMAND. THE INTEGRATOR DATA SHOW A SENSIBLE VELOCITY GAIN OF 14,927 FPS

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DURING ORBITAL
BY THE AGENA ENG
VEHICLE ORBITAL
ALTITUDE.
2. AGENA ELECTRICAL POWER SYSTEM
NO EVIDENCE OF AGENA ELECTRICAL POWER SYSTEM
PROBLEMS HAS BEEN NOTED.
4. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM
THE AGENA GUIDANCE SYSTEM RESPONDED PROPERLY TO
A 4.3S SEC TIME-TO-FIRE CORRECTION AND A 43S FPS
VELOCITY-TO-BE-GAINED ADJUSTMENT COMMANDED THROUGH
THE FIRST STAGE GROUND GUIDANCE SYSTEM. THE ASCENT
TIMER PROPERLY CONTROLLED THE TIME AND SEQUENCE OF
ALL CRITICAL EVENTS AFTER SEPARATION. THE ATTITUDE
CONTROL SYSTEM WAS PROPERLY ACTIVATED AFTER THE
COMPLETION OF SEPARATION AND IN CONJUNCTION WITH THE
INERTIAL REFERENCE GYROS AND HORIZON SCANNER WAS
SUCESSFUL IN MAINTAINING THE PROPER ATTITUDE DURING
COAST AND ORBITAL BOOST PHASES. THE CONTROL GA S
EXPENDITURE APPEARED TO BE NORMAL; HOWEVER, THE

PAGE SIX VAFB
FAILURE OF THE HIGH RANGE CONTROL GAS PRESSURE MEAS-
UREMENT AT T PLUS 278 SEC DOES NOT PERMIT DIRECT VERIFI-
CATION OF GAS USAGE SUBSEQUENT TO THIS TIME. ENGINE
SHUTDOWN WAS COMMANDED BY THE INTEGRATOR AFTER
THE REQUIRED VELOCITY INCREMENT HAD BEEN GAINED.
HYDRAULIC SYSTEM PERFORMANCE WAS ADEQUATE.
5. AGENA SPACE COMMUNICATIONS SYSTEM
OPERATION OF THE ACQUISITION BEACON AND THE
RADAR BEACON WAS SATISFACTORY. VTS TRACKED THE
ACQUISITION BEACON FROM LIFTOFF TO 545 SEC AND THE
RADAR BEACON FROM LIFTOFF TO 519 SEC. AT 545 SEC, THE
LOSS OF LINK 1 TELEMETRY DATA FADE FOR VTS. ALL
TELEMETRY CHANNELS WERE OPERATING. AT THIS TIME
THE ORBITAL TIMER WAS SET AT 5628 SEC (STEP 57), IN THE
RESET-ON POSITION, IN THE INCREASE MODE, AND ALTER-
NATE RE-ENTRY DISARM STATE. AGENA LINK1 TELEMETRY
WAS RECEIVED FROM APPROXIMATELY 154 SEC TO FADE AT
545 SEC. NO GROUND COMMANDS WERE SENT DURING THE
ASCENT PHASE. TRACKING STATION COMMUNICATIONS
DURING THE LAUNCH OPERATION WERE ADEQUATE.
6. AEROSPACE GROUND EQUIPMENT
AGENA VEHICLE CHECKOUT WAS SATISFACTORILY

AGE SEVEN VAFB
CCOMPLISHED DURING THE COUNTDOWN; HOWEVER, THE
OLLOWING PROBLEMS WERE ENCOUNTERED:
1. DURING TASK 15, (SECURE PROPELLANT TRANSFER
KITS) A SMALL UDMH LEAK OCCURRED IN THE FUEL FILL
MBILICAL LINE (AGE). THE UMBILICAL WAS REMOVED FROM
[redacted]
AD DAMAGE WAS NORMAL AND THE
REHABILITATION CAN BE ACCOMPLISHED IN THE NORMAL
URNAROUND SCHEDULE.
. COUNTDOWN
OUNTDOWN OF THE THOR/AGENA VEHICLE 534/1126
AS INITIATED AT 0300 PDT ON 13 MAY 1966 AND LIFTOFF
CCURRED AT 1243:32.17 PDT. DURING THE COUNTDOWN, 6
OLDS WERE IMPOSED TOTALING 115 MIN. PHASE V WAS
ECYCLED 3 TIMES, THUS INCREASING THE TOTAL COUNT-
OWN OPERATING TIME BY 8 MIN. HOLD NO. 1 (30 MIN DURA-

AGE EIGHT VAFB
TION) WAS IMPOSED AT T-60 MIN (0958 PDT). TWENTY - FIVE
MIN OF THE HOLD WAS USED TO COMPLETE WORK ON AGENA
CHECKOUT WHICH HAD FALLEN BEHIND SCHEDULE DUE TO
ADDITIONAL EVALUATION TESTS ON THE H-TIMER, AND TO A
PROBLEM ENCOUNTERED DURING TASK 7 IN RESETTING THE
H-TIMER.THE REMAINING 25 MIN WAS IMPOSED FOR RANGE SAFETY (TRAINS)
HOLD NO.2, (15 MIN DURATION) WAS IMPOSED AT T-15 MIN
(1103 PDT) FOR RANGE SAFETY (TRAINS).
HOLD NO. 3 (8 MIN DURATION) WAS IMPOSED IN PHASE V AT
T-2 MIN 40 SEC (1132 PDT) FOR RANGE SAFETY (TRAINS).
COUNTDOWN WAS RECYCLED TO START OF PHASE V.
HOLD NO. 4, (6 MIN DURATION) WAS IMPOSED IN PHASE V AT
[illegible] SEC (1147 PDT) FOR RANGE SAFETY (TRAINS). COUNTDOWN
WAS RECYCLED TO START OF PHASE V.
HOLD NO. 5 (6 MIN DURATION) WAS IMPOSED IN PHASE V AT
T-26 SEC (1149 PDT) DUE TO INTERMITTENT INDICATION OF
THOR 100 PER CENT LOX LOAD MEASUREMENT. PROBLEM
RESULTED FROM HOLD NO. 4 BEING IMPOSED AFTER LOX
LOAD HAD REACHED 100 PER CENT. COUNTDOWN WAS RE-
CYCLED TO START OF PHASE V.
HOLD NO. 6 (33 MIN DURATION) WAS IMPOSED IN PHASE V
AT T-30 SEC (1201 PDT) DUE TO ABNORMAL INDICATION OF
THOR 100 PER CENT LOX LOAD MEASUREMENT. ONE MIN
AFTER THE HOLD WAS IMPOSED THE RANGE WAS CLOSED DUE
TO TRAINS. COUNTDOWN WAS RECYCLED TO START OF PHASE
V. AND PROCEDED TO NORMAL LIFTOFF.
BT
16/0248Z MAY VAFB

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